

ASSOCIATION OF ENGINEERING GEOLOGISTS

SOUTHERN CALIFORNIA SECTION

"Serving Professionals in Engineering, Environmental and Ground-Water Geology Since 1957"

November 1994

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This Newsletter is provided as part of your membership in the Association of Engineering Geologists. If you are not a member of AEG and would like to subscribe to this newsletter, send check or money order in the amount of \$35.00 (\$15.00 for full time students), made out to "AEG Southern California Section", to the newsletter editor (see address on back page).

Deadline for submittal to the December newsletter: November 24

THIS MONTH'S MEETING

November 8, 1994

Geology of the Santa Monica Mountains

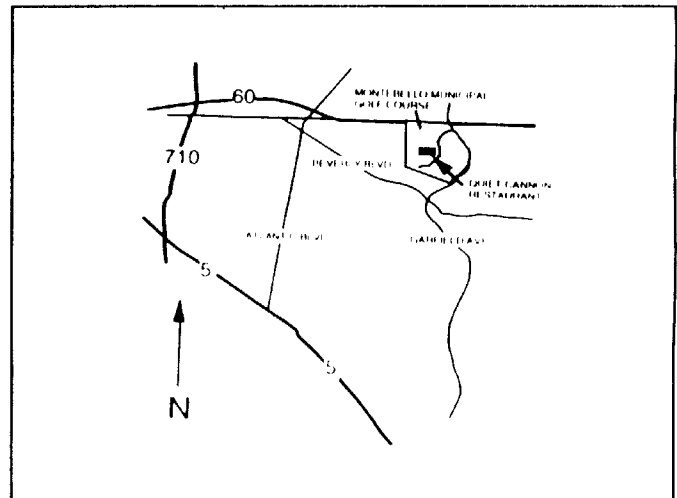
presented by

Thomas W. Dibblee, Jr. & Helmut E. Ehrenspeck

Reservations must be made by Friday, November 4
by calling GeoSoils at (818) 785-2158
(leave your name and the number of people in your party)

Cost: \$20.00 (full time students \$10.00)

Map to Meeting



The Quiet Cannon
901 North Via San
Clemente
Montebello

6:00 Social Hour
7:00 Dinner
8:00 Program

Geology of the Santa Monica Mountains

**Thomas W. Dibblee, Jr. and Helmut Ehrenspeck
Dibblee Geological Foundation**

The Santa Monica Mountains were complexly elevated by compression mostly in late Cenozoic time on the Malibu Coast-Santa Monica fault zone along their southern border. This range exposes in its eastern part Mesozoic crystalline basement overlain by clastic sedimentary rocks of late Cretaceous and early Tertiary age.

All these units are unconformably overlain by a very thick sequence of Oligocene to late Miocene strata that make up the major part of this range. In ascending order this sequence consists of the terrestrial Sespe Formation, the marine lower and upper Topanga Formations separated by the Conejo Volcanics, and the marine Monterey and unnamed formation. All these units are extremely variable in facies and thickness and several are separated by great local angular unconformities, indicating tectonic turbulence during deposition. This makes structural interpretations very difficult and controversial.

The Conejo Volcanics, as thick as 6000 feet in western exposures, are composed mainly of basaltic rocks erupted through fissures now filled with diabase, and andesitic to dacitic breccias in western areas extruded from local vents and fissures now plugged with andesite or dacite.

The rock formations of this range are anticlinally folded and faulted, with the oldest rocks exposed just north of the Malibu Coast fault and the youngest in the synclinal area between this range and the Simi Hills to the north. Fold axes trend west to northwest. The potentially active Malibu Coast fault is an imbrication of steep north-dipping reverse faults with a left slip component on the main strand.

Geologic mapping of this range and of the Simi Hills by the Dibblee Foundation is now completed and published. The newest maps printed in 1994 are the Malibu Beach, Point Dume, and Thousand Oaks quadrangles. Tom Dibblee will discuss the regional stratigraphy and structure, Helmut Ehrenspeck will emphasize field relations of the Conejo Volcanics.

A mosaic of all of the published quadrangles of the

range will be on display.

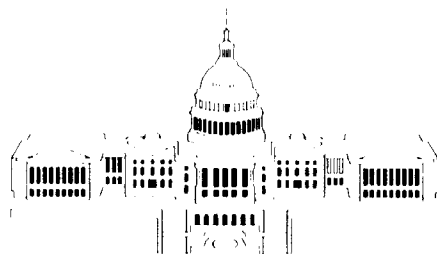
Tom Dibblee was born in Santa Barbara, California in 1911. He graduated from Stanford University in 1936 and spent one year doing field work in western Santa Barbara County for Union Oil Co. at Santa Maria. In 1937 Tom took a job with Richfield Oil Co. where his duties included field work and oil exploration of sedimentary basins throughout California, western coastal Oregon and Washington. Tom began his 25 years with the U.S. Geological Survey in 1952 where he did geological mapping of the Mojave Desert, San Gabriel and San Jacinto Mountains, eastern and central Transverse Ranges, southern Coast Ranges, and the entire San Andreas fault zone. From 1977 to the present Tom has been a Research Associate in Geology with U.C. Santa Barbara where he has

authored 37 research reports and articles. Between 1978 and 1983 Tom volunteered his time with the U.S. Forest Service geologic mapping (contributed 106 quadrangles) of Los Padres National Forest. Since 1983 Tom has occupied his time with volunteer geologic mapping and publication of geologic maps of southern California (50 maps of 67 geologic quadrangles published so far; 11 currently in preparation). Some of the many awards and honors Tom Dibblee has received are: U.S. Forest Service (1967), Distinguished Service Award for extensive mapping of the western and central Mojave Desert; American Association of Petroleum Geologists (1981), Human Needs Award for extensive geologic mapping and research publications on California Geology; U.S. Forest Service (1982), Volunteer Service Award for volunteer geologic mapping of the entire Los Padres National Forest (1.2 million acres); U.S. Executive Branch - President Ronald Reagan (1983), Presidential Volunteer Action Award (one of 20 awardees from over 2000 nominees) for volunteer geologic mapping of the entire Los Padres National Forest; University of California, Santa Barbara (1986), University of California Bronze Medal for contributions on the geology of the Transverse Ranges; County of Ventura Supervisors (1987), Professional Accomplishment, for the geologic



mapping of all of Ventura County; County of Santa Barbara Supervisors (1988), Professional Accomplishment for the geologic mapping of all Santa Barbara County; and the California State Legislature (1990), Professional Accomplishment for extensive geologic mapping of California; and many other awards and honors from other organizations, such as SEPM, AAPG Pacific Section, Coast Geological Society, etc. Tom Dibblee is currently "retired" and living in Santa Barbara with his wife, Loretta.

Helmut Ehrenspeck was born in Munich, Germany and immigrated to the United States in 1953. He earned a BA in geology at the University of Massachusetts in 1966, and an MA in geology from U.C. Santa Barbara in 1972. During this time Helmut also made time for additional studies at the University of Munich, Germany (1963-1964), and Ohio State University, Columbus (1970-1972). Helmut worked as a field geologist for Ohio State University in the early 1970's doing geologic research on an expedition to the Transantarctic Mountains, Antarctica, with the National Science Foundation & Institute of Polar Studies. This was followed by more field work with Cyprus Georesearch Corporation, Los Angeles, where he used geologic remote sensing to study Basin and Range geology and explore potential mineral resources of the southwestern U.S. In the late 1970's to the early 1980's Helmut was editor of the quarterly R & D journal on oil pollution published by the Environmental Protection Agency and U.C. Santa Barbara. Since 1984 Mr. Ehrenspeck has been editor for the Dibblee Geological Foundation where, since 1986, he has prepared and published 50 of Tom Dibblee's geologic maps of southern California; and he has only about 400 more maps to go! Some awards and honors Helmut has received include: NASA traineeship, volcanic geology (1970); Mt. Ehrenspeck, Antarctica (1978); NSF Antarctica Service Medal (1981). ϕ



POLITICAL SCENE

HOUSE PASSES EARTHQUAKE HAZARDS REDUCTION ACT

On October 4, 1994, the House of Representatives passed the Senate amendment in the nature of a substitute to H.R. 3485, the Earthquake Hazards Reduction Act Authorization, clearing the bill for President Clinton's signature. The bill authorizes spending in fiscal years 1995 and 1996 for the National Earthquake Hazards Reduction Program (NEHRP) and directs the President to assess U.S. capabilities in earthquake engineering research and testing.

"Thirty-nine states are at significant risk for a damaging earthquake. The residents of those States have NEHRP working for them, and their houses and roads are safer because of the work initiated and advanced by this program," said Rep. George E. Brown, Jr. (D-Calif.), chairman of the House Science Committee, which has jurisdiction over earthquake research.

"Funding for the multi-agency NEHRP program is modest in scope, but its long-term goals are lofty. NEHRP seeks to promote better understanding of seismic risk, improved designs for building and transportation structures, and a reduction of fatalities and injuries during earthquakes," said Rep. Brown. "NEHRP provides the nation maps and data that form the foundation of seismic building codes in every county and locality in the United States."

The Federal Emergency Management Agency (FEMA), National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey participate in NEHRP, with FEMA designated the lead agency. The Earthquake Hazards Reduction Act of 1977 created NEHRP, which supports research, applications, and emergency management to improve public safety during earthquakes.

The October 4 action authorizes \$103.2 million for FY 1995 and \$106.3 million for FY 1996.

"For more than 15 years, this program has helped to improve performance of structures and protection of life during earthquakes," explained Rep. Rick Boucher (D-Va.), chairman of the House Science Subcommittee and the bill's author. "During the Northridge Earthquake, retrofitted highway columns held, buildings that incorporated advanced earthquake-resistance technologies performed extremely well, and the loss of life was much less than expected."

"However, the Northridge Earthquake also showed that there are still challenges ahead," said Rep. Brown. "Seismologists are now convinced that the earthquake pattern in California is unprecedented. Earthquake engineers question the response of steel-framed structures to earthquake motions. And, the collapse of the Northridge Meadows Apartments uncovered problems in building codes for small, one- to three-story structures."

The Senate amendment directs the President to conduct an assessment of earthquake engineering and testing capabilities in the United States.

"This assessment will address the growing concern that U.S. testing of building designs and construction methods cannot keep pace with the demand to test such structures and ensure public safety during earthquakes," explained Rep. Brown.

Copies of H.R. 3485, the Earthquake Hazards Reduction Act Authorization, are available from the Committee's publication clerk (202-226-4530).

Members of the Coalition's eight constituent organizations are to be highly commended for their strong support during the bill's legislative journey. Letters, phone calls, and testimony submitted to the key House and Senate committees and committee members were very effective in moving this bill to a successful passage.

AEG is a member of the Coalition of Professional and Scientific Associations in Support of NEHRP, a group that supports the fundamental and applied research and public policy actions required to reduce earthquake losses and also pursues continued, sustained funding for NEHRP. For more information on the group, contact NEHRP Coalition Chairman, Robert J. Swain; tel. 714-846-5578, fax no. 714-846-5668, or Eldon Gath, AEG's liaison to the Coalition, at 714-250-1421. ϕ

-- Source: House Science Committee, AGU Staff and NEHRP Coalition

"Say not 'This is the truth' but "So it seems to me to be as I now see the things I think I see'."

Inscription above a doorway at the Naval Officers School, Kiel

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By Henry H. Neel

The first registration act which indirectly affected geologists in California was the Civil Engineer's Act of 1929. This was enacted in the wake of the disastrous failure of the San Francisco Dam in 1928. The definition of "Civil Engineering" in the Act includes "...the investigation of the laws, phenomena and focus of nature." This in itself is a pretty good definition of geology; and is the basis for some of the conflicts existing between engineers and geologists because the wording is such that many civil engineers have accepted it to mean that they are privileged to practice geology as well as civil engineering.

In 1947 the Civil Engineers and Land Surveyors Act was enlarged to include "Civil and Professional Engineers." This included several other engineering disciplines besides civil engineering. Of particular interest to the geologists was the inclusion of Petroleum Engineering. Unfortunately, the definition of petroleum engineering included among other things "the use and interpretation of electric logs and the construction of subsurface contour maps." Although this was a "title" act which would only restrict geologists from using the title of petroleum engineer but not restrict their practice of petroleum engineering, it still placed a cloud over the status of the geologist. Many oil companies were concerned that without registration the testimony of geologists would not be accepted in court. For this reason they requested that their geologists seek registration as petroleum engineers so their legal status would not be jeopardized. Fortunately, because of a rather lenient grandfather clause, most Petroleum Geologists, who used electric logs and constructed subsurface contour maps as a matter of course, had little or no difficulty in obtaining registration as Petroleum Engineers.

The history of geologists' registration in California had its basis in the very heavy rainfall winter of 1951-52 which caused many disastrous landslides and mudslides in southern California and particularly in the City of Los Angeles. These slides were the result of extensive excavation which had been done for housing developments in hilly areas, principally of the Santa Monica Mountains, during the post-war housing boom. The City wisely recognized that there was not an adequate ordinance in the City of Los Angeles, or anywhere else for that matter, to control the practices of excavation and grading, particularly for housing developments. It therefore wrote a grading ordinance, which was adopted in 1952, aimed at the regulation of these practices. This ordinance was probably the first such ordinance written in the United States, if not the world. Among other things, it required that a geologic opinion must be obtained in the event that the City Building and Safety Department felt that the area presented any sort of geologic hazard. This was one of the first, if not the first, legal recognition of the role which geologists should play in any

sort of activity involving geologic phenomena. Prior to this time the problem of geologic hazards had been handled principally by civil engineers, with a few notable exceptions where geologists were given the responsibility for landslides and other slope problems. In even rarer instances were geologists given authority in such matters, since usually they worked under the direction of, and frequently at the whim of, civil engineers.

The sudden demand for engineering geologists created by the Los Angeles building ordinance of 1952 unfortunately produced quite a few "geologists" who were unqualified for the work. Some of these were qualified petroleum, mining or groundwater geologists who, although they had excellent training in their fields, had no training or experience in regard to engineering problems. Even worse were those civil engineers and others who had a smattering of geologic education and very shallow experience and could write a reasonable sounding report and sign it as a geologist.

This situation brought forth the realization that although the requirement for geological opinions on all questionable grading projects was far better than had existed prior to the passage of the ordinance, it still left a good deal to be desired. It was recognized that some method must be adopted to assure that geological opinions were expressed by qualified people rather than incompetents. For this reason an Engineering Geologists Qualification Board was established by the City of Los Angeles in 1957. The purpose of this board was to review the qualifications of those geologists practicing engineering geology in the City of Los Angeles and to establish a list of those whose reports would be accepted by the City Department of Building and Safety.

The City of Los Angeles Engineering Geologists Qualification Board did a creditable job of establishing qualifications and giving both written and oral examinations to those geologists desiring to practice engineering geology in the City. This served satisfactorily for the City of Los Angeles but did not provide for outlying areas and other governmental entities. As a result, the County of Los Angeles followed suit and established its own grading ordinance and Geologists Qualification Board in 1959. An interesting note as to the relative position of civil engineers and geologists can be seen in the makeup of the Los Angeles County Engineering Geologist Qualification Board which, as late as 1965, consisted of four civil engineers and only three geologists. This condition was due, in part, to the fact that the profession of civil engineering was recognized by the State of California and civil engineers had proper legal status, whereas the profession of geology was not recognized by the State and geologists had little or no recognition or status either in the courts or elsewhere. As an example, in 1964 the writer had testimony as a geologist challenged in a court case involving purely petroleum exploration matters and was only able to get said testimony accepted after producing evidence of registration as a petroleum engineer.

The result of the City of Los Angeles and the County of Los Angeles each having its own Geologists Qualification Board led to the absurd circumstance where some geologists were authorized to practice within the City and not in the County of Los Angeles

Editor's Note: This article was distributed by an unknown person at a meeting of the South Coast Geological Society. Every reasonable effort has been made to locate the author and/or a previous publisher for permission to reprint the article here. As of the publication of this newsletter no response to inquiries has been received. Responsibility for the reprinting of this article lies solely with the Newsletter editor.

and others could practice in the County but not in the City.

Following the establishment of the ordinances requiring geological input in Los Angeles City and County, there was a proliferation of similar ordinances and boards in other parts of the State. In all, approximately 20 or more local geologist qualification boards were established in California.

Some of the other political entities were in favor of regulating geological practices but were not sufficiently energetic about it to establish their own qualification boards. They elected to accept some other city or county list of geologists to determine who could practice in their own county. The ultimate in absurdity arose when a prominent consultant in Santa Barbara could not practice in his own county because he was not included on the Los Angeles County list of qualified engineering geologists. The examination given by the Los Angeles County Engineering Geologists Qualification Board very properly required a knowledge of the geology of Los Angeles County but not of Santa Barbara County. The geologist in question was thoroughly qualified in his own county where he wished to practice but was not sufficiently knowledgeable about the details of Los Angeles County geology to be accepted on the Los Angeles County list.

In the late 1950's and early 1960's engineering geologists became disturbed by the salary and job status inequities between themselves and Civil Engineers with whom they closely worked; by the growing number of county and city ordinances regarding engineering geologists; and the lack of legal standing of geologists in general.

Through the California Association of Engineering Geologists which was formed in 1950 (later to become nationwide as the Association of Engineering Geologists (AEG) these engineering geologists introduced Senate Bill No. 1349 (Rodda) in April 1963. This was a "practice" bill aimed at the registering of engineering geologists under the Civil and Professional Engineers Board. The definition of engineering geology was broadly drawn and among other things included groundwater and underground fluids, so that many geologists other than engineering geologists would be affected. Since it was a practice act rather than a "title" act, it would not only have prevented petroleum geologists from calling themselves engineering geologists but it would have prevented them from working at their own profession involving underground fluids. The registration requirements, including the grandfather clause, was so written as to exclude all except experienced engineering geologists. It took seven months for the rest of the profession to awaken to what was going on but the Sacramento Petroleum Association finally sounded a warning to its membership and other societies in November, 1963.

The San Joaquin Geological Society (SJGS) studied the bill and in December of 1963 recommended that S.B. 1349 be opposed. It also daringly recommended that a bill to register all geologists be prepared, and suggested that an inter-society committee be formed to prepare a bill; and further suggested that the American Institute of Professional Geologists (AIPG), which at that time was only three weeks old, be consulted on the matter and possibly

take on the task of coordination. As a result of further study by AIPG and the SJGS, the original bill was amended and presented to the Senate Business and Professional Study Committee along with statements from various societies. As a result, S.B. 1349 was tabled.

On March 29, 1965 Senator Short, Chairman of the Senate Business and Professions Committee, introduced S.B. 871 with Senator Rodda as co-author. This was a crude attempt to broaden S.B. 1349 (1963) to register all geologists under their own board. While the scope was expanded, the other parts of the bill remained almost identical to those in the earlier bill and in this form it was unworkable. Over the next several weeks of prodigious effort on the part of SJGS, AIPG and others, the bill was drastically amended and delivered to Senator Short on May 10, 1965. Senator Short accepted the amendments in their entirety and S.B. 871 became an AIPG bill.

S.B. 871 passed the Senate but was later amended in the Assembly to give the Director of Professional and Vocational Standards nearly dictatorial control over registration. This could not be accepted by the American Association of Petroleum Geologists (AAPG), AIPG, AEG, and SJGS and they successfully opposed the bill.

During 1966 a bill was drawn to establish an "Institute of California Geologists" patterned after the Engineering and Related Professions Act of Alberta and other similar acts under which the profession would be chartered or incorporated to regulate itself. This attained its final form December 16, 1966 as a joint AIPG-

AEG model bill. This was a good bill but that is as far as it ever got.

It was known in the early fall of 1966 that both the City and County of Los Angeles were getting fed up with being in the geologists registration business and were going to work for a statewide geologists regulation bill in 1967. One of the recommendations of the "Committee on the Geological Environment in the City of Los Angeles," August 25, 1966, which was established at the request of Mayor Sam Yorty, appointed by national AIPG President Martin Van Couvering and chaired by Richard H. Jahns of Stanford University, was as follows:

"The Engineering Geologist Qualification Board should be dissolved, the City of Los Angeles would no longer be assuming local responsibility for registering, qualifying, or certifying geologists in a field that is extraordinarily difficult to define. In our view, regulation of some kind is highly desirable for professional geologists as a whole, and such regulation should be introduced at the state level. We recommend, therefore, that the City's 1967 legislative program encourage introduction of a bill in the State Legislature (preferably the Assembly) that would provide for the chartering of geologists on a professionalized basis. Chartering of geologists as a public Corporation is the preferred alternative to a program of direct registration, which in 1963 and 1965 failed to win the legislature's approval."

This led to high hopes that we might be able to establish a chartering bill. However, in late January, February and March

Before it ended it became obvious that there were a significant number of unqualified charlatans who were so fearful of regulation that they were willing to perform outright criminal acts in order to defeat the bill.

of 1967, a subcommittee of the Los Angeles City Council conducted hearings which, among other things, dealt with statewide regulation of geologists. Although incorporation or chartering was supported by most organizations, it was opposed vocally by a very small number of Los Angeles area engineering geologists, and as a result the Los Angeles City Council Committee voted on March 16, 1967 to submit and support a statewide geologists registration bill.

A draft registration bill was prepared by AIPG based on S.B. 871 (1965) as revised, and incorporating many features from the defunct "Institute of California Geologists Act," (December, 1966). This draft with minor revisions became S.B. 1493 (1967) (Rodda). When introduced April 11, 1967 this bill was supported by AAPG, AIPG, and AEG. It was pushed by those organizations and the Los Angeles City lobby. It was passed in the Senate but in the Assembly it was amended at the last minute to place the geologists' registration under the Board of Civil and Professional Engineers. AEG and the City of Los Angeles continued to support the bill in this form. However, AIPG and AAPG opposed it strenuously and effectively prevented its passage on August 6, 1967.

On January 13, 1968, Assemblyman Bill Ketchum volunteered to introduce an updated version of S.B. 1493 providing for registration under a Board of Geologists. This information was sent to the legislative committee chairman of AAPG, SJGS, AEG, and to AIPG.

S.B. 1493 (1967) was updated and introduced as A.B. 600 (1968) (Ketchum) on February 19, 1968. This bill was subsequently passed and, other than for minor revisions to perfect the bill, it is that bill that is in effect today.

At the insistence of AEG and the City of Los Angeles, the bill includes specialty certification of engineering geologists. Specialty certification was not requested or desired by any other geological specialty.

Toward the end of the campaign a very interesting but alarming development underlined the necessity for regulation to eliminate the rascals from the profession. A flood of telegrams, letters,

and telephone calls began to come in to several legislators on committees or in other positions which could influence the fate of the bill. These were all signed by fictitious names, in many instances cleverly contrived by using the first name of one well known geologist combined with the last name of another. As the scheme progressed the perpetrators became more desperate and started using the first and last names of actual geologists with a different middle initial. The ultimate came when they actually forged in its entirety the name of one of the top officials in the California Division of Mines and Geology.

At the same time, telephone calls were received from people purporting to represent governmental bodies and in at least one instance the call was actually charged to the telephone number of the Santa Barbara County Board of Supervisors.

There was a liberal use of organization names which were so close to actual names as to indicate they were intentionally misleading; for example: the American Geological Society.

This prompted some of the National Societies to join forces and retain a well known firm of private investigators to try to apprehend the perpetrators. The investigation, although it produced some very interesting results, did not develop evidence sufficient for criminal prosecution. Before it ended it became obvious that there were a significant number of unqualified charlatans who were so fearful of regulation that they were willing to perform outright criminal acts in order to defeat the bill.

In the end, this fracas was probably all to the good. It certainly convinced those geologists and legislators who harbored any doubts as to whether or not such regulatory legislation was needed. And it so incensed many of the legislators to think that anyone could take them for such fools that they swung to the side of regulation immediately.

Subsequently the geophysicists who had declined to associate with the geologists in seeking registration from the outset, actively sought and with the aid of the geologists, were successful in amending the code to include geophysicists in registration. ϕ

MEETINGS, FIELD TRIPS, ETC.

NOVEMBER

- 7 **South Coast Geological Society Monthly Meeting: Doug Morton - SCAMP (Southern California Aerial Mapping Project)** Revere House, 901 First Street, Tustin, CA. For reservations call Leighton and Associates at (714) 250-1421.

DECEMBER

- 5 **South Coast Geological Society Monthly Meeting: Poster Session - Christmas Meeting and Raffle!** Please Call Alan Pace at (714) 458-7414 with your poster session title. Please bring donations to this meeting for the raffle! Revere House, 901 First Street, Tustin, CA. For reserva-

tions call Leighton and Associates at (714) 250-1421.

- 13 **AEG Monthly Meeting: Dr. Tom Henyey** - Southern California Earthquake Center/USC. Quiet Cannon, 901 North Via San Clemente, Montebello, CA. For reservations call GeoSoils, Inc., at (818) 758-2158.

ANNOUNCEMENTS

Alan Kropp & Associates is performing research on earthquake-induced movements of fills, under NSF Grant CMS-9416510. Geotechnical consultants with site specific data from either the 1989 Loma Prieta earthquake or the 1994 Northridge earthquake are encouraged to contact Alan Kropp, principal investigator, or David McMahon, project engineer, at (510) 841-5095. ϕ

JOB OPPORTUNITIES

Employment ads are placed in this newsletter free of charge as a service to our readers. We also accept ads from people looking for work in engineering geology and related fields. Ads run one (1) issue. Contact the editor for further details.

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GEOQUOTE OF THE MONTH

"When the work of the geologist is finished and his final comprehensive report is written, the longest and most important chapter will be on the latest and shortest of the geological periods."

G.K. Gilbert

WRITE TO THE NEWSLETTER EDITOR

If you have a suggestion for "Geoquote of the Month", or if you have any news items, short articles (or long if space is available), commentary, suggestions, gripes, complaints, book reviews, software reviews, or whatever, and you would like to share them with your colleagues via the AEG Southern California Section Newsletter, send it to the Newsletter Editor at the address below, or on the internet at ctnestle@aol.com. Longer works are preferred on floppy disk, formatted by any DOS or Windows-based word processor (If you have a MAC, please save your work as an ASCII file or in a DOS format that I can retrieve). Diskettes will be

returned if requested. Please include your phone number in case I have a question.

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